REVIEWS OF BOOKS

GENETICS

Muntzing, Arne. *Genetic Research: A survey of methods and main results.* Stockholm, 1961. LTs Förlag. Pp. 345. Price. Sw. cr. 36. (50s.)

IT IS A matter for congratulation that Professor Müntzing's textbook of genetics, first published in Swedish in 1953 and then in a German translation in 1958, has now become available in an English version; actually it is based on the second Swedish edition published last year, and is remarkably up-to-date. The author has covered a very wide field, and his mastery of the subject and lucidity of style has enabled him to produce a book which is both brief and readable.

As was to be expected, the work is particularly authoritative in the field of plant genetics and cytology, not least in the sections on polyploidy and accessory chromosomes to which the author and his colleagues have made such distinguished contributions. Altogether there are thirty chapters which cover virtually every important aspect of genetics with due emphasis on modern developments throughout. This is followed by a glossary of terms and definitions, and a short selection of books for further reading; throughout the text, few authors are mentioned by name so that the student will find it difficult to trace the original sources; however, that is one of the sacrifices which had to be made to keep the book short, and perhaps fewer students find the time and energy to read original papers than their teachers hope and imagine. There are numerous good illustrations.

Despite a disarming disclaimer about the linguistic side of this English edition in the Preface, and because this book will probably be with us for many years, it would be desirable to improve subsequent editions in this respect. Depending on their temperament, some readers will be amused or irritated to read "nativity" where it should be "birth rate" and the like. However, this is a very minor criticism in what is obviously an excellent book.

H. GRÜNEBERG

Penrose, L. S. (Editor.) *Recent Advances in Human Genetics.* London, 1961. Churchill. Pp. vii + 194. Price 27s. 6d.

THIS STIMULATING LITTLE book on human genetics is edited by Professor L. S. Penrose, with the assistance of Miss Helen Lang Brown, of the Galton Laboratory and reflects the interests of that laboratory.

Professor Penrose's contribution deals with mutation, both point mutation and chromosomal aberation. He emphasizes the difficulties of estimating the rate of point mutations. He discusses the direct tests that have been made for induced mutation, and also the indirect tests for mutagenic influences such as maternal and paternal age at the conception of the abnormal child. He also contributes a chapter on foetal growth showing that, complex though the determination of birth weight is, it is possible roughly to partition the variation observed in England between a number of hereditary and environmental causes. The two most important specific factors are maternal hereditary constitution and foetal heredity.

Dr. D. G. Harnden of the Medical Research Council Unit at Edinburgh discusses the new techniques of chromosome culture and some of the important results they have given. This is at present the most rapidly developing field of human genetics, and has had great value in educating the general public on the importance of genetics.

Dr. O. G. Miller of New York discusses the abnormalities of sex differentiation, many of which have now been shown to be due to aberation of the sex chromosomes.

Human biochemical genetics is represented in a chapter by Dr. P. S. Gerald of Boston on the abnormal haemoglobins. These are a good choice because in them the geneticist is perhaps closest to understanding the primary action of the mutant gene. The allelic gene mutations responsible for the production of haemoglobins S and C have been shown to result in single amino acid substances at the same point

in the protein portion of the haemoglobin molecule.

The genetics of quantitative inheritance is illustrated by Mrs. S. B. Holt's study at the Galton Laboratory of the intra-familial correlations for total ridge counts on the fingerprints. These come remarkably close to the values one would deduce from the number of genes that relatives of each type have in common.

The first steps in mapping the human chromosomes are described by Dr. J. H. Renwick from Glasgow. The rare girls and women who now have been shown to have only one X-chromosome provide a useful new way of distinguishing conditions due to recessive X-linked mutant genes.

Finally there is a lucid chapter by Dr. C. A. B. Smith on the statistical methods that have been elaborated to meet certain problems in the analysis of human genetic data, for example the balance between mutation and selection, population sampling and estimations of gene frequency.

C. O. CARTER

Gardner, Eldon J. *Principles of Genetics*. New York and London, 1960. Wiley. Pp. vii + 366. Price 60s.

IN PUBLISHING THIS book John Wiley and Sons have given us a direct competitor to the McGraw-Hill Book Company's *Principles of Genetics* by Sinnott, Dunn and Dobzhansky. Surely in no other discipline can the student choose between two books so similar in intent, scope, format and price. One wonders, indeed, at the commercial wisdom of such a venture, and what may be the reason for the choice of an identical title. But we, as geneticists, can only benefit from having a choice, and must be grateful for it.

Gardner's book covers less ground, in less detail, than the latest edition of Sinnott, Dunn and Dobzhansky's,* and is thus somewhat shorter. The diagrams and illustrations are perhaps more profuse, and the line drawings are of a higher quality. The excellent sketches of prominent geneticists are a welcome novelty, although the English reader will regret not having the artist's impressions of Fisher and Haldane! The index is as comprehensive as Sinnott's, although the latter's Appendix, containing an English translation of Mendel's original paper on the garden pea, has no counterpart. In both books the layout on each page is in two columns, composed in Times type at six lines to the inch. But whereas Gardner's is printed in ten-point type, Sinnott's is in eight-point, which makes for rather harder reading.

Unfortunately Gardner's style of writing does not lend itself to elementary scientific exposition. In the interests, one presumes, of clarity and simplicity, the book is written in short staccato sentences, a style which leads to an unwelcome number of dogmatic statements: "All characteristics have a hereditary and an environmental component"—"Science is the organized effort of mankind to understand the physical and biological world. It is a method or a guide used by man in his search for truth. Critical observation and experimentation are the sources of data"—"Some genes will respond differentially to a wide range of conditions. Therefore, the immediate effect depends more on environment than on the genes"—"The alterations in gene frequency, therefore, represent the basis for change in the genetic structure of natural populations. This is evolution"—"In spite of the limitations, studies of twins represent the most reliable method for study of human genetics"—"All common domestic plants and animals were serving man before the beginning of written history." The use of the conditional does not seem to have penetrated to Utah.

This is, however, a well-balanced book. The eighteen chapters are divided along the lines of the chapters in the earlier editions of Sinnott, Dunn and Dobzhansky; statistical concepts are elegantly introduced where they are needed, and are not reserved for a final indigestible chapter as in Sinnott. There is a separate chapter on population genetics, but this is rather disappointing. The nettle is barely found, let alone grasped, and much of the account could with advantage be dispersed to other sections of the book.

The reviewer is not competent to appraise the treatment of many of the topics, but he

* See THE EUGENICS REVIEW. 1958, **50**, 203.